CH32V307EVT Evaluation Board Introduction and Application

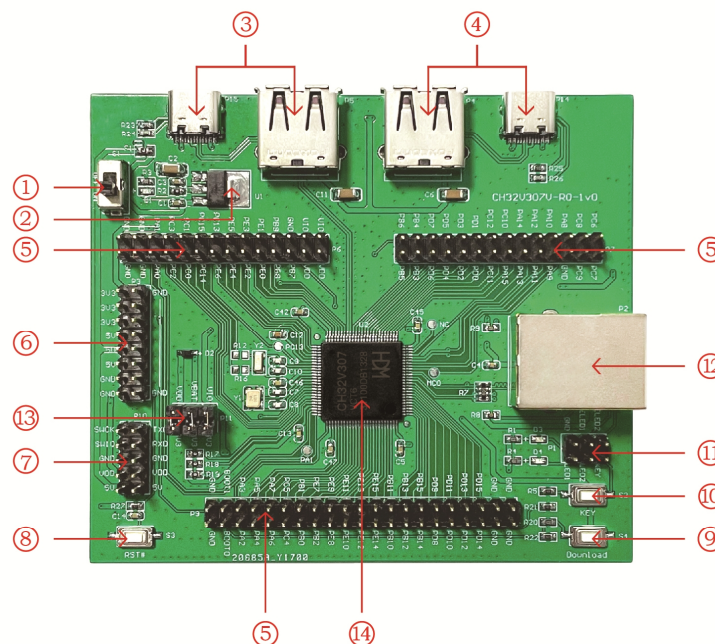Version: V1.3

http://wch.cn

1. Overview

This evaluation board is used to develop CH32V307. For integrated development environment (IDE), MounRiver compiler is used. To simulate and download, the onboard WCH-Link and separate WCH-Link are both available. The application reference examples and demonstrations related to the chip resources are provided.

2. Hardware

For the evaluation board schematic, please refer to CH32V307SCH.pdf.

CH32V307评估板\ CH32V307Evaluation

模块说明\ Descriptions

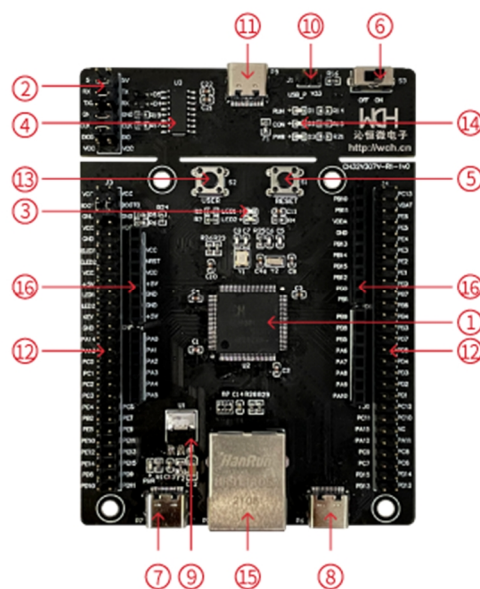|			
1.Power Switch	5.MCU I/O Port	9.Download Button	13.MCU Power Connector
2.Low Dropout Regulator	6.Power Connector	10.KEY Button	14.Master MCU
3.USB Interface	7.DEBUG Interface	11.KEY and LED Connector	
4.USB Interface	8.Reset Button	12.Network Interface	

The above CH32V307 evaluation board is equipped with the following resources:

Main board - CH32V307EVT

1. Switch (S1): Used to disconnect or connect to external 5V supply or USB supply.
2. Positive low dropout regulator (U1): Used to convert 5V supply into 3.3V supply which is available to the chip.
3. USB interface (P5, P15): USB communication interfaces PB6 and PB7 of the main chip

4. USB interface (P4, P14): USB communication interface PA11 and PA12 of the main chip

5. MCU I/O port (P6, P7, P9): I/O lead-out interfaces of the master MCU

6. Power extension connector (P3): 5V/3.3V/GND external supply power extension connector

7. Debugging interface (P10): Used to download and simulate.

8. Button (S3): Reset button, used for external manual reset of the main MCU

9. Button (S4): Download button, used to startup download from BOOT

10. Button (S2): It connects to the IO port of the master MCU through the extension connector P1 for button control

11. KEY and LED extension connector (P1): It connects to the IO port of the master MCU to control LED and KEY

12. Network interface: Network communication interface of the main chip

13. MCU power extension connector (P11): Used to select supply of the master MCU

14. Master MCU: CH32V307VCT6

模块说明 \ Descriptions

1. Master MCU	5. Reset Button	9. Voltage Regulator	13. USER Button
2. SDI&UART Interface	6. Power Switch	10. Download Interface	14. WCH-Link Indicator
3. LED	7. USB2.0 Full-speed Interface	11. WCH-Link Interface	15. Network Interface
4. WCH-Link MCU	8. USB2.0 High-speed Interface	12. MCU I/O	16. ARDUINO Interface

The above CH32V307V evaluation board is equipped with the following resources:

Main board - CH32V307EVT

1. Master MCU: CH32V307VCT6

2. SDI&UART interface: Used to download and simulate, and jumper to select whether to use the onboard WCH-Link

3. LED: Controlled by connecting the extension connector J3 to the IO port of the master MCU

4. WCH-Link MCU: MCU to implement WCH-Link function

5. Button (S1): Reset button, used for external manual reset of the master MCU

6. Switch (S3): Used to disconnect or connect to external 5V supply or USB supply

7. USB type-C interface (P7): It connects to USB2.0 full-speed communication interface of the main chip.

8. USB interface (P6): It connects to USB2.0 high-speed communication interface of the main chip

9. Voltage regulator (U1): Used to convert 5V supply into 3.3V supply which is available to the chip

10. Download interface (J1): Used to update WCH-Link firmware when it is short-circuited by jumper

11. WCH-Link interface: Used to connect PC and the functional module WCH-Link

12. MCU I/O port: I/O lead-out port of the master MCU

13. USER button (S2): It connects to the IO port of the master MCU through the extension connector J3 for button control

14. WCH-Link indicator LED: D1, D2 and D3, used to indicate the running status of WCH-Link

15. Network interface: Network communication interface of the main chip

16. ARDUINO interface: Easy to connect to the development board with ARDUINO interface

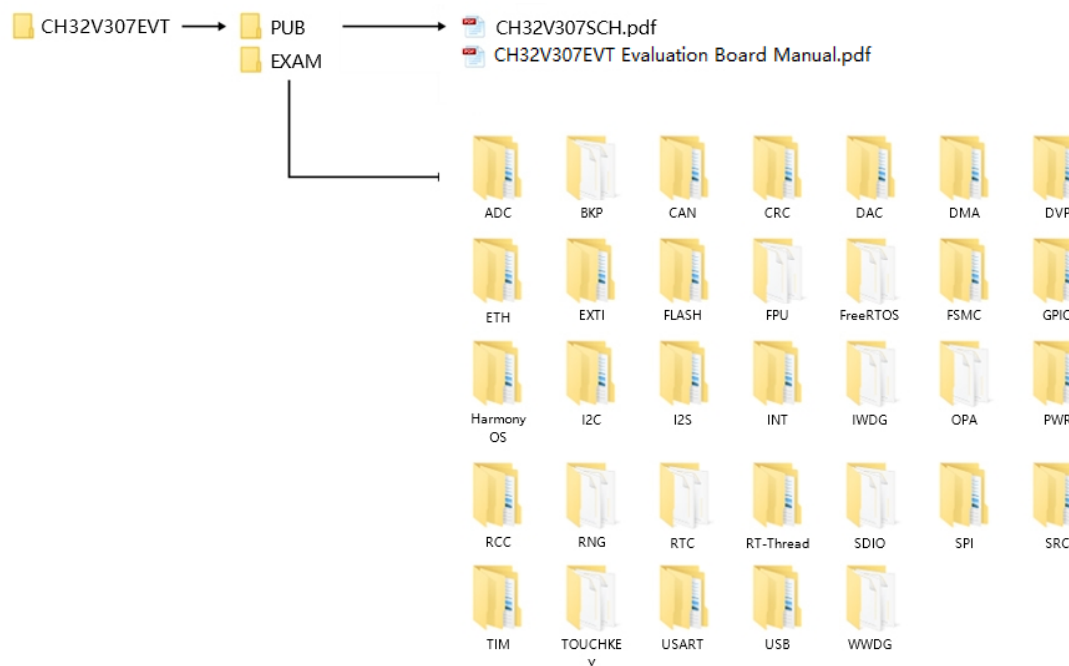# 3. Software

3.1 Directory structure of EVT packet

Figure 3-1 Directory structure of EVT packet

Note:

"PUB" folder: Evaluation board manual, evaluation board schematic.

"EXAM" folder: CH32V307 controller software development driver and corresponding examples, classified by peripherals. Each peripheral folder contains one more functional application routine folders.

3.2 IDE–MounRiver

Download MounRiver_Studio. Double-click to install, and it can be used after installation. (For detailed introduction to MounRiver_Studio, see: MounRiver\MounRiver_Studio\MounRiver_Help.pdf and MounRiver_ToolbarHelp.pdf）
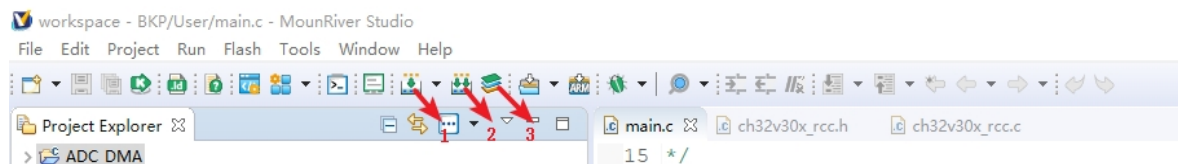
3.2.1 Open project

➢ Open project:

1）Directly double-click the project file with the suffix .wvproj under the corresponding project path;

2）Click on file menu in MounRiver IDE, and select Load Project, then select the file with the suffix .project under the corresponding path, click Confirm to apply.

3.2.2 Compile

MounRiver contains three options to compile, as shown in the figure:

Button marked as 1: Incrementally Build, compile the modified part of the selected project;

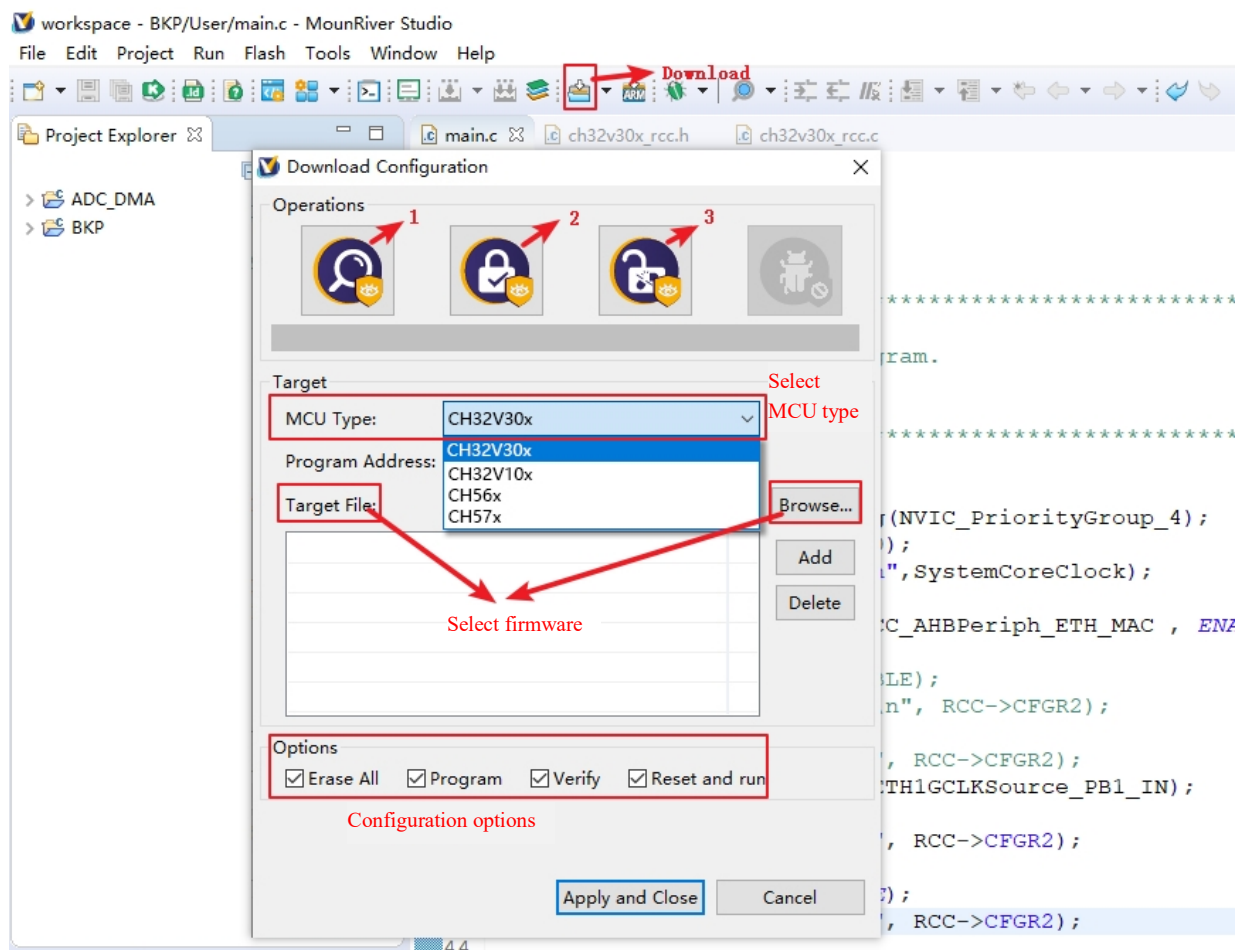Button marked as 2: ReBuild, compile the selected project globally;

Button marked as 3: All Build, compile the whole project globally.

3.2.3 Download/Simulate

➢ Download

1) Debugger download

Connect the hardware via WCH-Link ((For detailed introduction to WCH-Link, see: MounRiver\MounRiver_Studio\WCH-Link Description.pdf), click on the Download button in IDE, and select options as required on the Download Configuration window, as shown in the figure:

In the figure: Icon marked as 1: Query read protection status of the chip.

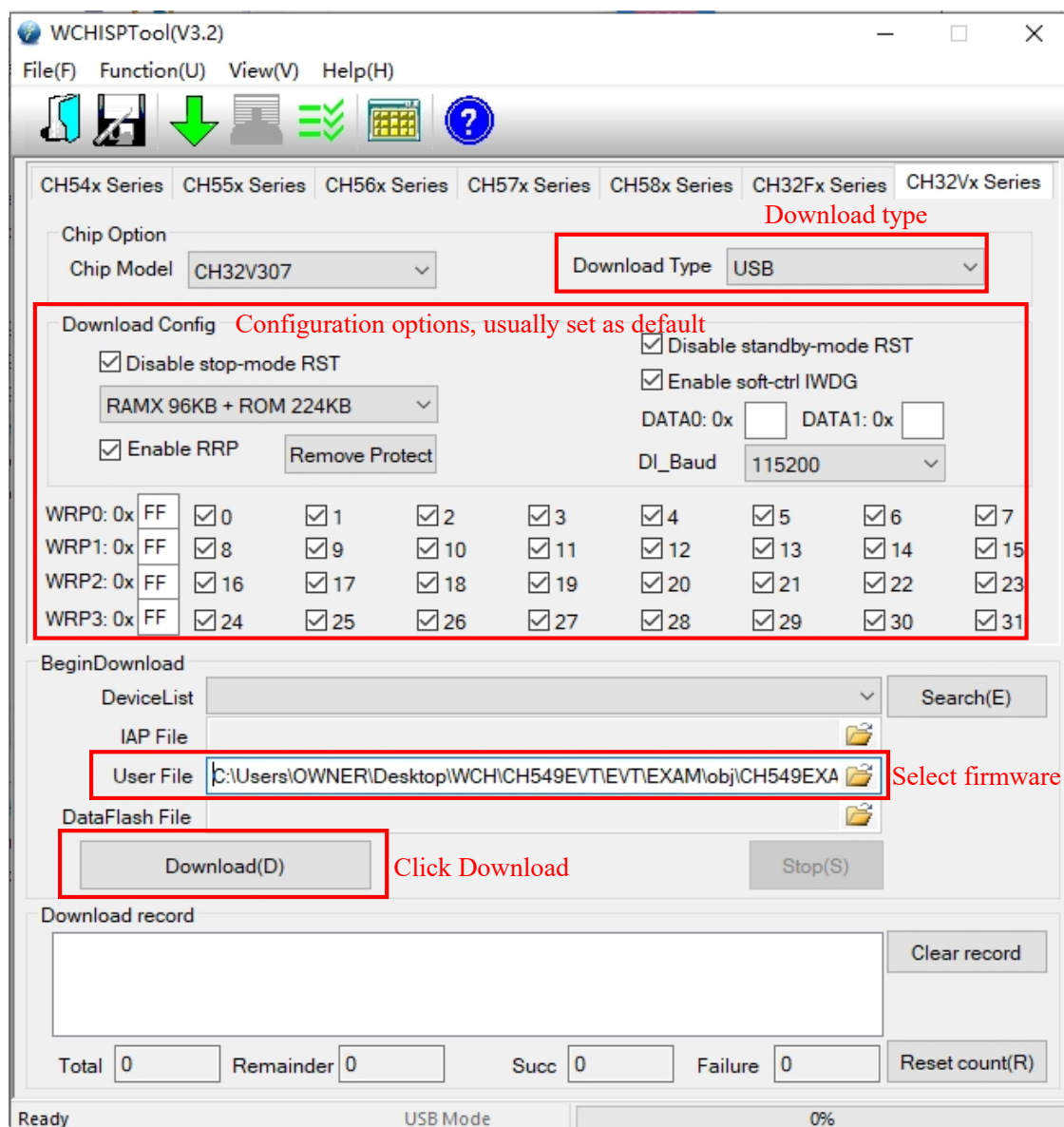Icon marked as 2: Set the chip read protection, and it will take effect after power-on.

Icon marked as 3: Release the chip read protection, and it will take effect after power-on.

2)   WCHISPTool Download

Use the WCHISPTool tool to download. Two download types are supported, USB and SerialPort. USB pins are PA11(DM), PA12(DP) or PB6(DM), PB7(DP). SerialPort pins are PA9(TX), PA10(RX).

(1)   BOOT0 to VCC, BOOT1 to the ground, connect to PC via serial port or USB;

(2)   Open the WCHISPTool tool, select the corresponding download type, select the firmware to download, select download configuration options, and click Download;

(3)   BOOT0 to the ground, power on again, run APP program.

WCHISPTool window is as shown in the figure:

➢   Simulate

1.   Start simulation

Click on the button marked as 1, to start debugging.

2.   Stop simulation

Click on the button marked as 2, to stop simulation. Click on the button marked as 3, to revert to the window displayed before simulation, as shown in the figure.